

GS-1510

Actuary Series

GS-1510

Use these individual occupational requirements in conjunction with the "Group Coverage Qualification Standard for Professional and Scientific Positions."

Basic Requirements:

- A. Degree: that included courses in actuarial science or mathematics and relevant statistics totaling at least 24 semester hours. This course work must have included differential and integral calculus and one or more courses in mathematics for which these calculus courses were prerequisite, and up to 9 semester hours of statistics.

OR

- B. Combination of education and experience—technical experience in actuarial support work or in mathematics, or an equivalent combination of education and experience. This education and/or experience must have included or been supplemented by either: (1) attainment of 60 credits for Society of Actuary (SOA) courses (see the table below for translation of course credits), or the successful completion of two actuarial examinations given by the Casualty Actuarial Society (CAS); or (2) at least 24 semester hours in actuarial science, mathematics, and statistics as described above.

Special Alternate Requirements for Actuary Positions at Grades GS-7 through GS-13: Successful completion of appropriate courses/examinations offered by the Society of Actuaries or the Casualty Actuarial Society, as evidenced by an official SOA or CAS transcript, in addition to meeting the indicated educational or experience requirements, is fully qualifying at the grade levels shown below:

GS-7: Course of study as described in paragraph A of the *Basic Requirements* and (1) attainment of 60 credits for SOA courses (see table below for determination of SOA course credits), or (2) successful completion of two of the CAS examinations.

GS-9: Course of study as described in paragraph A of the *Basic Requirements* and (1) attainment of 150 credits for SOA courses, or (2) successful completion of four of the CAS examinations.

GS-11: Either (1) one year of successful professional actuarial experience equivalent to the GS-9 level or above, and attainment of 200 credits for SOA courses, or successful completion of five of the CAS examinations, or (2) Fellowship in the Society of Actuaries or the Casualty Actuarial Society.

GS-12: One year of successful professional actuarial experience equivalent to the GS-11 level or above, and either (1) attainment of 200 credits for SOA courses, or successful completion of five of the CAS examinations, or (2) Fellowship in the Society of Actuaries or the Casualty Actuarial Society.

GS-13: One year of successful professional actuarial experience equivalent to the GS-12 level or above, and either (1) attainment of 200 credits for SOA courses, or successful completion of five of the CAS examinations, or (2) Fellowship in the Society of Actuaries or the Casualty Actuarial Society.

Actuarial Courses and Examinations: The actuarial courses and examinations are given by the Society of Actuaries and Casualty Actuarial Society. The first examination covers undergraduate level general mathematics; the second covers undergraduate level probability and statistics. The remaining written tests deal with more advanced aspects of actuarial work. Sample questions and additional information on the courses and examinations may be secured from:

Society of Actuaries
Casualty Actuarial Society
500 Park Boulevard
One Penn Plaza
Itasca, Illinois 60143
250 West 34th Street

New York, New York 60143

QUALIFICATION STANDARDS OPERATING MANUAL



GS-1510 (Continued)*Society of Actuaries Courses and Credits*

<i>Number</i>	<i>Credit</i>	<i>Number</i>	<i>Credit</i>	<i>Number</i>	<i>Credit</i>
100	30	G-320	30	I-443U	25
110	30	I-340	30	I-445	25
120	15	I-342C	10	P-460C	35
130	15	I-343U	10	P-461U	20
135	10	P-360U	15	G-520	10
140	10	P-361C	20	G-521	10
141	10	P-362U	15	G-522	10
150	40	P-363	15	G-523	10
151	15	P-364C	20	I-542	10
160	15	P-365	25	I-550	10
161	10	G-420C	10	P-560	20
162	10	G-421U	20	P-561C	10
165	10	G-422	20	P-562U	10
200	40	I-440C	25	P-563	10
210	30	I-441U	25	P-564	10
220	30	I-442C	25		

Notes: Associateship in the Society of Actuaries is equivalent to attaining 200 credits for series 10 0 courses (i.e., those courses with "1" as a first digit in the number column). Unrestricted Elective (URE) credits without direct correspondence to a specific course may be granted by the SOA. A maximum of 60 such URE credits will be considered as qualifying credits.

GS-1515

Operations Research Series

GS-1515

Use these individual occupational requirements in conjunction with the "Group Coverage Qualification Standard for Professional and Scientific Positions."

Basic Requirements: Degree: in operations research; or at least 24 semester hours in a combination of operations research, mathematics, probability, statistics, mathematical logic, science, or subject-matter courses requiring substantial competence in college-level mathematics or statistics. At least 3 of the 24 semester hours must have been in calculus.

Evaluation of Education: The primary requirement of operations research work is competence in the rigorous methods of scientific inquiry and analysis rather than in the subject matter of the problem. Therefore, applicants should have sufficient knowledge of applied mathematics to understand and use the fundamental concepts and techniques of operations research methods of analysis. In addition, some positions may require knowledge of a specific subject area.

Courses acceptable for qualifying for operations research positions may have been taken in departments other than Operations Research, e.g., Engineering (usually Industrial Engineering), Science, Economics, Mathematics, Statistics, or Management Science.

The following are illustrative of acceptable courses: optimization; mathematical modeling; queueing theory; engineering; physics (except descriptive or survey courses); econometrics; psychometrics; biometrics; experimental psychology; physical chemistry; industrial process analysis; managerial economics; computer science; measurement for management; mathematical models in social phenomena; and courses that involved application of operations research techniques and methodologies to problems of management, marketing, systems design, and other specialized fields; or other comparable quantitative analysis courses for which college-level mathematics or statistics is a prerequisite. Courses in theory of probability and statistics are highly desirable, but are not specified as minimum educational requirements because to do so would possibly exclude some applicants who would otherwise be well qualified.

GS-1520

Mathematics Series

GS-1520

Use these individual occupational requirements in conjunction with the "Group Coverage Qualification Standard for Professional and Scientific Positions."

Basic Requirements:

A. Degree: mathematics; or the equivalent of a major that included at least 24 semester hours in mathematics.

OR

B. Combination of education and experience—courses equivalent to a major in mathematics (including at least 24 semester hours in mathematics), as shown in A above, plus appropriate experience or additional education.

The total course work in either A or B above must have included differential and integral calculus and, in addition, four advanced mathematics courses requiring calculus or equivalent mathematics courses as a prerequisite.

GS-1521

Mathematics Technician Series

GS-1521

Use these individual occupational requirements in conjunction with the "Group Coverage Qualification Standard for Technical and Medical Support Positions."

Specialized Experience (for positions at GS-4 and above): Experience may have been gained in technician positions such as physical science, engineering, computing, mathematics, and statistics.

OR

Education and Training:

For GS-3: Successful completion of 1 year of study that included at least 6 semester hours in an y combination of courses such as mathematics, computer programming, engineering science , statistics, physical science, or surveying.

For GS-4: Successful completion of 2 years of study that included at least 12 semester hours in an y combination of courses such as those shown above for GS-3.

For GS-5: Successful completion of a full 4-year course of study leading to a bachelor's degree with major study in, or that included at least 24 semester hours in, mathematics courses includin g differential and integral calculus.

GS-1529

Mathematical Statistician Series

GS-1529

Use these individual occupational requirements in conjunction with the "Group Coverage Qualification Standard for Professional and Scientific Positions."

Basic Requirements:

A. Degree: that included 24 semester hours of mathematics and statistics, of which at least 12 semester hours were in mathematics and 6 semester hours were in statistics.

OR

B. Combination of education and experience—at least 24 semester hours of mathematics and statistics, including at least 12 hours in mathematics and 6 hours in statistics, as shown in A above, plu s appropriate experience or additional education.

Evaluation of Education: Courses acceptable toward meeting the mathematics course requirement o f paragraphs A or B above must have included at least four of the following: differential calculus, integral calculus, advanced calculus, theory of equations, vector analysis, advanced algebra, linear algebra , mathematical logic, differential equations, or any other advanced course in mathematics for which one of these was a prerequisite. Courses in mathematical statistics or probability theory with a prerequisite o f elementary calculus or more advanced courses will be accepted toward meeting the mathematic s requirements, with the provision that the same course cannot be counted toward both the mathematics and the statistics requirement.

Evaluation of Experience: The experience offered in combination with educational courses to meet th e requirements in paragraph B above should include evidence of statistical work such as (a) sampling, (b) collecting, computing, and analyzing statistical data, and (c) applying known statistical techniques to data such as measurement of central tendency, dispersion, skewness, sampling error, simple and multipl e correlation, analysis of variance, and tests of significance.

Without other indications of statistical experience, work required in the processing of numerical o r quantified information by other than statistical methods is not consider ed appropriate qualifying experience. Examples of such nonqualifying work include statistical clerical work; statistical drafting; calculation of totals, averages, percentages, or other arithmetic summations; preparation of simple tables or charts; o r verification of data by simple comparison or proofreading.

GS-1530

Statistician Series

GS-1530

Use these individual occupational requirements in conjunction with the "Group Coverage Qualification Standard for Professional and Scientific Positions."

Basic Requirements:

- A. Degree: that included 15 semester hours in statistics (or in mathematics and statistics, provided at least 6 semester hours were in statistics), and 9 additional semester hours in one or more of the following: physical or biological sciences, medicine, education, or engineering; or in the social sciences including demography, history, economics, social welfare, geography, international relations, social or cultural anthropology, health sociology, political science, public administration, psychology, etc. Credit toward meeting statistical course requirements should be given for courses in which 50 percent of the course content appears to be statistical methods, e.g., courses that included studies in research methods in psychology or economics such as tests and measurements or business cycles, or courses in methods of processing mass statistical data such as tabulating methods or electronic data processing.
- OR
- B. Combination of education and experience—courses as shown in A above, plus appropriate experience or additional education. The experience should have included a full range of professional statistical work such as (a) sampling, (b) collecting, computing, and analyzing statistical data, and (c) applying statistical techniques such as measurement of central tendency, dispersion, skewness, sampling error, simple and multiple correlation, analysis of variance, and tests of significance.

GS-1531

Statistical Assistant Series

GS-1531

Use the "Group Coverage Qualification Standard for Clerical and Administrative Support Positions."

GS-1540

Cryptography Series

GS-1540

There is no OPM qualification standard for positions in this series. If a standard is needed to fill these positions, the employing agency should contact OPM for assistance.

GS-1541

Cryptanalysis Series

GS-1541

Use these individual occupational requirements in conjunction with the "Group Coverage Qualification Standard for Technical and Medical Support Positions."

Specialized Experience (for positions at GS-4 and above): Experience must have been in a specific branch of the physical sciences such as physics, chemistry, geology, or metallurgy, or mathematics.

OR

Education and Training:

For GS-3: Successful completion of 1 year of study that included at least 6 semester hours of courses in the physical sciences or mathematics.

For GS-4: Successful completion of 2 years of study that included at least 12 semester hours in the physical sciences or mathematics.

For GS-5: Successful completion of a full 4-year course of study leading to a bachelor's degree that included major study or at least 24 semester hours in the physical sciences or mathematics.

GS-1550

Computer Science Series

GS-1550

Use these individual occupational requirements in conjunction with the "Group Coverage Qualification Standard for Professional and Scientific Positions."

Basic Requirements: Degree: with 30 semester hours in a combination of mathematics, statistics, and computer science. At least 15 of the 30 semester hours must have been in any combination of statistics and mathematics that included differential and integral calculus.

Evaluation of Education: Applicants should have sufficient knowledge of statistics and mathematics, as well as other subjects, to understand the fundamental concepts and techniques of computer science. Courses designed to provide an introduction to computer science techniques and methodologies, to problems of system design, and other specialized fields are acceptable. Courses or experience in teaching elementary, business, or shop mathematics are not acceptable.

GS-1599

Mathematics and Statistics Student Trainee Series

GS-1599

Use the "Group Coverage Qualification Standard for Competitive Service Student Trainee Positions," as appropriate to the appointing authority used.